TMF

January 1991

THE MAC FLYER - For Greater Safety in MAC Air Operations

Flying the OSA mission . . . page 16

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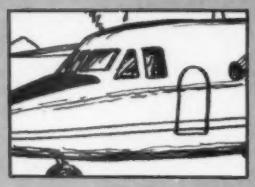

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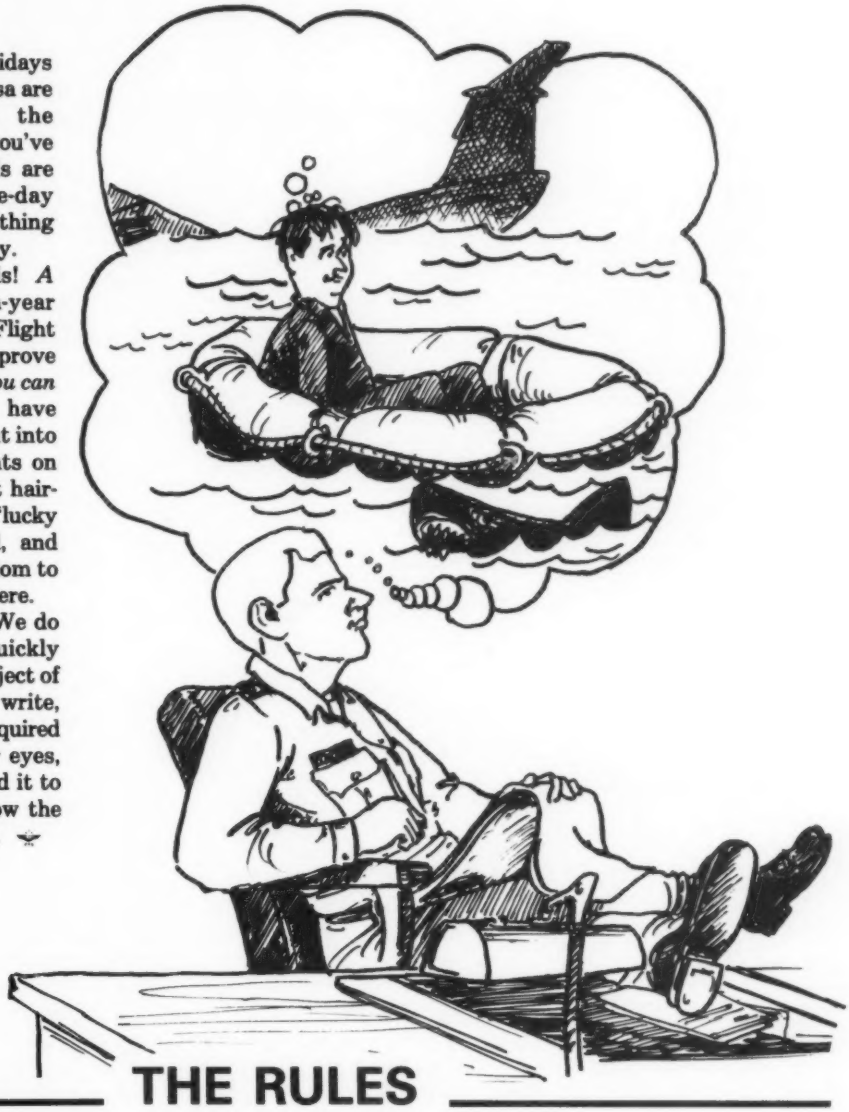
THINGS AREN'T SO BAD, ARE THEY?

We know! We know! Holidays are over, MasterCard and Visa are pounding on the door, the snowblower is on the blink, you've gained ten pounds, the kids are sick, and the next three-day weekend is eons away. "Nothing to look forward to," you say.

You're wrong, there is! *A CHALLENGE!* A once-a-year challenge to enter the MAC Flight Safety Writing Contest and prove to yourself once and for all *you can* do what countless others have done in the past—that is, put into written words your thoughts on flight safety; relive the last hair-raising experience you were "lucky enough" to have survived, and offer a couple words of wisdom to the less experienced out there.

It's not that difficult. We do it every month. Just quickly create a synopsis on the subject of your choice, expound on it, write, rewrite, edit, check on the required safety message, close your eyes, cross your fingers, and send it to *TMF*. Just be sure to follow the rules and guidelines below.



THE RULES

The 1991 MAC Flight Safety Writing Contest is conducted according to MACR 900-3 and these rules. Entries must be original, unpublished, contain an aviation safety/mishap prevention message, and be postmarked no later than 31 March 1991. Stories must be between approximately 1,000 and 3,000 words long (about 6 to 14 double-spaced types pages). Poetry should average 75 to 100 lines. Manuscripts must be typed, double-spaced, and submitted in two copies. Identify entries by title only and attach a cover sheet indicating author's name, address, duty phone, unit, and home address. Please include a brief biography.

The contest is open to all. Entries qualifying under the above rules earn their author a complimentary one-year subscription to *TMF*. However, desk sets and plaques may only be awarded to military members and civilian employees of the Department of the Air Force and Air Reserve Components. Other entries may be selected for Honorable Mention Special Category.

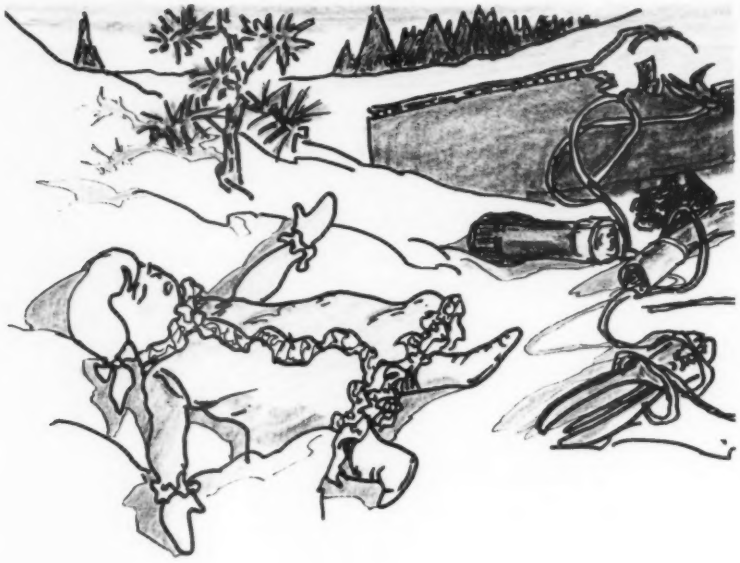
Winning entries will be published in *TMF*.

Submit to:

MAC Flight Safety Writing Contest, 1991
HQ MAC/QSSE
Scott AFB, Illinois 62225-5101

Cold Facts

The "non-objective" side of a mishap investigation.



By Capt. Charles T. Buntin
438 MAW, McGuire AFB, N.J.

BEEEEP! 0400! (O-dark-thirty.) Capt. Tom Beaty fell out of the sack and tripped twice getting to the alarm clock, but successfully turned it off without serious injury. Stumbling to the kitchen, he turned on the coffee maker and moved to the den to stoke up the wood stove. By the time the coals flamed to life with newly added wood, Sue Beaty, the long-suffering "maintenance widow," had his oatmeal and black coffee on the table; he dug in, trying to return his brain to the world of the living.

"Why you?" Sue yawned as she stirred her own porridge. "You just finished a crash investigation in September—it hasn't even been four months yet."

Tom rubbed his face, leaned back in his chair, and stretched. "This one, according to Col. David, is 'special,' whatever that means, and he wants an experienced hand." Tom knew very well what "special" meant. This one was a "smoking hole" C-141B on a hilltop in the middle of Alaska, and the circumstances of the crash, the priority of the mission, and 110 dead souls made it "special."

"Tom," the boss had said, "we can't afford a learning curve on this one. Col. Franks, your board president from the Greentree mishap, is president on this one too—and he wants you."

The Greentree crash . . . Tom remembered that recent experience all too well. The mishap aircraft had been severely damaged, but not destroyed, with no fatalities, though the instructor loadmaster would always walk with a limp. What made that mishap board memorable was the searing heat of the Oklahoma pasture where the aircraft came to rest after overrunning the runway, and the long list of leads Tom had run down in wringing out all the possibilities. The cockpit voice recorder had malfunctioned, and the flight data recorder tape had broken prior to the approach and landing, so vital evidence was missing. Tom extracted every piece of the AWLS and ILS for depot analysis, then he and Maj. Larry, the investigating officer, pieced the flight profile together from FAA radar tapes and witness testimony. In the final analysis,

HONORABLE MENTION
1990 MAC FLIGHT SAFETY WRITING CONTEST

everyone up and down the chain of command had been highly satisfied with the findings and recommendations of the investigation board, though Tom had never felt comfortable with the scarcity of hard facts. With the detachment of a professional investigator, Tom thought about the tasks ahead of him and hoped this tragic mishap would yield evidence he could put his finger on. He was not going to be disappointed on that score.

Tom gave Sue a "30-day-hug" goodbye; she wistfully threw him an expert salute from the front door as Tom Jr. threw his Dad's gear in the backseat of the four-by-four and eased it onto the snow-covered country road toward the base. As his son drove through the gentle snowfall, the captain reinventoried his mobility bag and inspector's kit out loud, "Cold weather gear, canteen, beef jerky, compass, tape measure, magnifying glass, graph paper, pencils, protractor, hunting knife, tape recorder, camera, film . . ."

His son interrupted, "Good grief, Dad, you think you have enough stuff there?"

"No Super-Marts where I'm going, T.J. Just a snowy mountain, trees, and a million pieces of airplane" and, he thought, 110 bodies. "Listen, sport, you take care of your mom and your little sisters, and don't let the homework slip, got it troop?"

"Got it, Oh Exalted Father of Mine," said the youngster as he pulled into the loading zone at Base Ops. When the two duffel bags and the B-4 were offloaded, he paused, grabbed his father's arm, and said, "Seriously, Dad, don't worry, I've got the ' brick'."

Colonel Franks was already in the briefing room, along with Maj. Shirley Red, investigating officer, who had flown up on a diverted local from Deep South AFB. Major Red had a solid rep as an FSO, had one Class A and two Class Bs to her credit, and had already been selected for a safety slot at Headquarters. Lt. Col. Odie, pilot member, was a grizzled old salt who was an IP back when Tom Beaty was an enlisted crew chief. He hated paperwork and staff jobs and would never wear silver eagles, but no one on active duty had more C-141 AC seat time or more respect from all who knew him as a solid professional aviator. A special addition to the crew was CMSgt. Jimmy "Death" Ray. Tom had specially asked for the Chief to come along—no one knew the innards of a Starlifter better, and besides, the Chief had kept him out of trouble ever since *SSgt.* Ray had been *AB* Beaty's trainer 20 years ago. The Chief eyed his former protege and current OIC, and raised his paper coffee cup in a greeting. "Olga says you owe us a night on the town when we get back for drafting me into this, Captain," he growled.

"Sure, Chief, least I can do," said Tom, then made the rounds of the room. Olga Ray, the Chief's German-born wife, was a good-natured woman whose bark was worse than her bite—a steak dinner was a small price to pay for having Chief Ray on his team.

After mumbled greetings and handshakes, Colonel Franks conducted a hasty first organizational briefing. "Folks, the Flight Surgeon, Weather, and Recorder are coming from 'Mecca on the Mississippi,' and the NAF Commander's rep is coming from Olympia AFB. They will meet us in Cold Dome, but for you folks, this is what I know.

"The mishap aircraft was on a direct flight from Olympia to Cold Dome with 102 passengers and eight crewmembers. There were no indications of abnormal flight reported until a garbled transmission when the aircraft was on long final. Then it disappeared from the radar screen, and nothing more was heard. The Alaskan National Guard located the wreckage 20 miles east of the base, in a large snowy clearing on a wooded-hilltop—there are no survivors. The postflight fire was not severe, and the aircraft is lying in about four large pieces, with a lot of debris close to the site. The Guard folks have secured the site and an interim board is on the scene. We will have a facility to work from; there is a forest ranger's station and fire tower about half a mile from the site." The colonel paused, looked around the room, and studied their faces. Then, he pensively lowered his eyes for a moment before continuing. "Most of the passengers were Army and Air Force families returning from Christmas leave. No investigation is emotionally easy, but this is really going to be tough. No pun intended, troops, but we are looking for cold facts. We are a team with one goal—the truth. For the purpose of this investigation, there is no rank, and we can't have personality problems or turf battles. When we meet as a group, you can say anything you want except 'I quit'." He leaned back against the podium and sighed, "It's like the old 'Dragnet' TV show, folks, 'just the facts, just the cold, hard facts'."

Sitting in the rear-facing seats on the Alaska-bound Starlifter, Captain Beaty tried to review his 127-Series regs, the investigators' work book and his old class notes from AMIC at Norton, but he couldn't keep his mind from wandering. He glanced at the Chief, asleep with an Old West paperback novel in his hands and remembered the first time they had worked on a mishap investigation, 15 years earlier. Tom had been a brash young E-4, and the Chief, a new master

sergeant flight chief, when their wing lost two birds the same day. They were called out to help the SIB comb the pasture fields around Northcome AFB and look for Number 2 engine debris. There, in a clump of bushes, the *then* Sergeant Beaty had found an amazing and key piece of the puzzle. Somehow, even though the largest intact piece of the aircraft itself was about the size of a desk

". . . it disappeared from the radar screen, and nothing more was heard."

top, Tom found the AFTO 781s, wet and battered, but intact and readable. Those forms told a story which caused many heads to roll before it was over . . . Tom's reverie of the past dissolved into a crazy dream in which T.J. was chasing the SIB around an ice-covered mountain in the four-by-four. He woke to Colonel Franks' gentle nudge on his shoulder, "We're here, Tom. Bag drag time."

After greeting the Cold Dome support staff and getting checked into billeting, the boss elected to let everyone get one last good night's sleep before proceeding to the remote crash scene, but the next morning they were up early in the still-dark Alaskan winter day and riding Army Hummers in a caravan to the site. At the Ranger station, they met the first of their team, members of the interim board, and the Army Guard on-scene commander. While everyone sipped lukewarm coffee from styrofoam cups, the colonel repeated his brief, updated some additional facts, and carefully planned the initial walk-through. "Stay pretty much together as a group, don't touch, move or otherwise disturb anything, and take a picture of anything you find that might be significant. Remember, we are looking for facts, cold, hard facts."

By the time the entourage reached the roped-off and guarded site, the brief, dim, Alaskan day was dawning. They started from initial impact and slowly walked through the ankle-deep snow and underbrush. The impact pattern looked like the aircraft had "mushed" in—a shallow stall? The wreckage was relatively intact (there were only a few trees on this hilltop). For some reason, the fire had not been severe, but was nevertheless extremely gruesome. Nothing in Tom Beaty's 20-odd years of enlisted and officer maintenance experience, not even his previous investigations, prepared him for this. Several times he choked back tears at the things he saw. How could you ever separate cold facts from this? The group took its time, logging every significant find and taking lots of photographs. Then, a fateful moment. "Captain B," yelled Chief Ray, "You better come here and see this." The Chief was motioning Tom to come over to where he stood near the remains of the right wing. He was pointing at something nestled in the snow beside a small clump of bushes, and he had an especially grim look on his face. Tom carefully stepped over, avoiding some debris in the path. He looked in the snow to where the Chief was pointing and saw a scene that would haunt him until the day he died.

To establish all the cold facts behind that scene would take most of the next three weeks, and some would never be explained. A photo of the scene the two men now gazed upon with horror would cause one witness in particular, a maintenance technician, to burst into tears. This same photo, shown as a slide at the CINC's briefing, would bring some wet eyes there as well. There would be other facts and factors; the voice recorder and flight data recorder would reveal crew coordination problems, and a less-than-optimum approach; the flight records would raise some questions about the AC's qualifications and experience; but what the Chief had found there in the snow by that solitary little clump of evergreen bush was really the whole story. There, where the Chief's finger was pointing, was a child's rag doll, somehow thrown clear of the fire, intact. It was laying on its back in the snow as if the owner had laid it down carefully, intending to retrieve it. Next to the doll, in a tangled heap, were four cold facts: A piece of what would prove to be the right outboard flap torque tube, intertwined with a tangled mass of spoiler cable and, snagged in the cable, all wound up with the torque tube, laying in the snow next to the pitiful little rag doll, were a pair of locking pliers and a standard Air Force issue flashlight.

Capt. Charles T. Buntin, a Distinguished Graduate of OTS in 1979 and maintenance officer's school in 1981, has held various jobs in the maintenance complex of McGuire AFB, N.J., and Ramstein AB, Germany. Capt. Buntin is currently a CRS maintenance supervisor at 438 MAW, McGuire AFB, N.J.

Excellence in Airmanship

From left to right: MSgt. Robert D. Chunn, Capt. Alexander R. Bapty, Capt. Phillip N. Means, SSgt. Bradley C. Bakker, MSgt. Michael A. Wilson; not pictured is Capt. Christopher L. Young.

Capt. Alexander R. Bapty and Crew, 17th Tactical Airlift Squadron, Elmendorf AFB, Alaska, were in their initial climb passing 7,000 MSL, on a routine airlift mission from Galena Airport, Alaska, to Elmendorf AFB, Alaska, on 7 May 1990. Fifteen minutes into the flight, a loud "bang" was heard when the underfloor heating shutoff valve separated from the main bleed-air duct, and within seconds, MSgt. Michael A. Wilson, loadmaster, lost his intercom. While Sergeant Wilson investigated loss of intercom, MSgt. Robert D. Chunn, the other loadmaster, inspected the right wheel well area for the source of the sound. He found intense heat radiating from the insulated area around the main right landing gear where bleed-air (300 degrees F) was being blasted into the wheel well area. Sergeant Wilson noticed Sergant Chunn's reaction to the heat and immediately went to the cockpit to inform the aircraft commander. By this time, the right wheel well overheat light had illuminated in the cockpit and the autopilot began an uncommanded right roll as a result of burned wire bundles, which created multiple system malfunctions including the loss of crew intercom. While SSgt. Bradley C. Bakken, flight engineer, worked to isolate the bleed-air leak, Capt. Christopher L. Young, copilot, accomplished the checklists for the multiple malfunctions and coordinated with air traffic control for an emergency return to Galena Airport. Capt. Philip N. Means, navigator, monitored the aircraft position, ensuring correct headings and adequate terrain clearance. Meanwhile, Sergeants Chunn and Wilson prepared the passengers for an emergency landing and subsequent evacuation, and helped the engineer troubleshoot the various system malfunctions. Loss of intercom forced the crew to coordinate emergency and abnormal procedures by shouting.

Captain Bapty executed a flawless approach to a safe landing followed by an uneventful egress. Captain Bapty and his crew's expert systems knowledge and quick actions under extremely difficult circumstances resulted in the safe recovery of their C-130 and passengers. Their actions merit the MAC Excellence in Airmanship Award. Congratulations from *TMF*.

The "Slam Dunk" Approach

Overconfidence or Boredom?

FLIGHT HISTORY

On 4 March 1987, at about 1200 local time, the flightcrew of Northwest Airlink Flight 2268 reported for duty. Flight 2268 was a regularly scheduled passenger flight between Mansfield, Ohio, and Detroit, Mich., with an intermediate stop in Cleveland. The airplane, a 22-passenger CASA-212-CC, N160FB, was operated by Fischer Bros. Aviation, Inc. At 1250, following a crew change, N160FB was flown from Galion, Ohio, to Mansfield to begin its flight. Passengers consisted of three crewmembers deadheading to Detroit.

The aircraft arrived in Cleveland at 1331 after a 20-minute flight. One passenger deplaned and nine others boarded. The flight departed at 1355, 15 minutes late, on an IFR flight plan. They were scheduled to land at 1420.

About 1434, Flight 2268 struck the ramp area at Detroit, 1,010 feet inside and to the left of the intended runway threshold. It skidded 398 feet, struck three ground support vehicles, and caught fire.

The deadheading Captain reported he was aware the airplane was being vectored for a left downwind approach. He said that at 60 to 70 feet AGL the airplane yawed violently to the left and banked left 80 to 90 degrees in a descent. The airplane then banked right and hit the ground.

The deadheading First Officer reported the flaps were extended, and the airplane was 75 to 100 feet above the ground when it rolled abruptly into a nosedown, 60 to 90-degree left bank. He said power was reduced on the right engine, but the sound of the left engine remained constant. The airplane then rolled quickly into a right bank and struck the ground.

Eyewitnesses reported the airplane appeared higher than normal as it approached the runway threshold. Several reported the airplane appeared to level off and they thought the pilot had started a go-around. Several individuals observed the airplane make a slight right bank before making a very steep left bank, descending toward the terminal building to the point of impact. Two individuals reported hearing unusual engine noises. One said there was a sound like "a prop going real fast" and the other described it as "a high pitch on one of the engines."

The Captain of another airplane holding short of Runway 21R said the mishap aircraft appeared very high on final. The nose then pitched up as if the pilot was about to make a go-around, followed by a 15-20-degree right bank, and then the airplane rolled into about a 60-degree left bank. The left bank continued and the airplane descended in a "slip" or "skid" until it was about 50 feet above the ground. The airplane then rolled into a right bank. The right wing struck the ground and broke about midspan. A flash fire immediately erupted.

A "rapid intervention" vehicle was on scene within one minute and 30 seconds. It was followed 15 seconds later by three CFR trucks. The fire was extinguished within two minutes of the first alarm; however, nine of 19 persons on board were killed.

Surviving passengers stated that fire and smoke engulfed the cabin soon after the airplane came to rest. The flight attendant was not able to ascertain conditions outside the airplane before the passengers exited. She reported she had difficulty opening the left forward emergency exit door because she was disoriented. She initially tried to open the door by pushing the handle down before she realized the handle had to be pulled upward because the airplane was upside down. Once it opened, she escaped despite intense fire in the vicinity of the door. The flight attendant and four passengers exited through the left forward emergency exit, and five passengers exited through the rear main entry door on the left side of the fuselage which had sprung open upon impact.

The interior of the fuselage was damaged extensively by fire and all the cabin interior materials showed evidence of fire damage. Most of the carpet, seat covers, cushion foam, and sidewall materials were consumed by fire. All seven cabin windows on the right side of the cabin melted.

Postmortem examinations of the nine fatalities revealed all died from smoke and soot inhalation and had not sustained traumatic injuries. Toxicological tests of the flightcrew were negative for drugs and alcohol.

ANALYSIS

Interviews with the flightcrew's coworkers revealed consistently positive reports on the First Officer, but mixed reports on the Captain's behavior and performance. On the one hand, the Captain was reportedly very experienced, thorough, competent, and conscientious, with a total flying time of 17,953 hours and 3,144 in the C-212. However, many of his reported actions were contrary to company policies and procedures. He demonstrated an apparent disregard for safe operating practices in conducting visual approaches with the unorthodox practice of making steep approaches at high rates of descent where such approaches were unnecessary.

Twenty-two company pilots who had flown with the Captain were interviewed to determine his flying habits and piloting techniques compared with company operational practices. The majority thought highly of the Captain. He was a senior pilot in the airline and one of the most experienced. He was reportedly a loyal employee who flew "pretty much by the book" and was a "good stick and rudder man." However, many of these same pilots also made the following comments:

"He never used the shoulder harness in the CASA, and was considered a 'cowboy' by some."

"He used steeper angles and higher rates of descents on visual approaches than other company pilots."

"He frequently made short field landings, flying at or below Vref, in an attempt to use the least amount of runway, and always turned off at the first taxiway in Detroit."

"He handled the CASA 'sportier' than others, using 2,000 feet per minute rate of descent, especially at Detroit."

"He pressed approaches more aggressively than other pilots in order to salvage an approach rather than go-around."

"He had his own method and philosophy concerning the tactic of flying the unpressurized 'slam dunk' arrival into Detroit."

"He had retarded the Position Levers (PLs) in CASA 212s behind the flight idle gate in-flight according to three First Officers who had flown with the Captain on occasion."

The pilot controls the propeller with the PLs and engines with speed levers. With the PLs at or above the flight idle gate, the propeller governor regulates blade angle as a function of airspeed and load on the engine to maintain a desired constant engine RPM. With the PLs in the beta range below the flight idle gates, the pilot has direct control over the propeller pitch because the propeller governor is mechanically locked out of the pitch control system. Beta mode operation and use of full reverse is designed for ground operation only, that is, for deceleration after landing and for taxiing.

On 3 April 1987, CASA performed several flights to simulate the mishap approach. In an attempt to determine how the airplane would react in flight with PLs placed in the beta mode, the airplane was trimmed for 120 KIAS and a symmetrical reduction of power made to a position one notch (about one

inch) behind the flight idle gate, into the beta mode. The following was observed:

—Torque indications went to 0.

—There was a characteristic cyclic propeller and powerplant noise, coupled with oil pressure fluctuations.

—The airplane pitched down to 12 degrees (stick free).

—The rate of descent reached 4,000 fpm with airspeed held constant at 120 KIAS. Pitch attitude control was positive with elevator input, and higher elevator forces were required to maintain an attitude comparable to normal conditions. The airplane decelerated rapidly when leveled.

—There was about a one second delay in power recovery when the PLs were moved forward into the flight idle gate.

Further aft movement of the PLs into the beta mode produced oil pressure fluctuations in both engines, the NTS lights did not illuminate and the airplane pitched down more than 12 degrees. With the PLs retarded further behind the flight idle gate, powerplant and propeller cyclic noise disappeared while engine RPM increased to 105 percent. The airspeed had to be reduced for the engines and propellers to recover from this condition after the PLs were returned to the flight idle gate. There was a delay in symmetric engine operation after the PLs were advanced simultaneously.

Asymmetric application of power, with one PL at flight idle and the other in the ground idle range, produced a descending yaw and roll in the direction of the propeller in the ground idle position. This was easily controlled with aileron. Additional tests determined that with the PLs at the flight idle gate, the net thrust was about 0 at 120 KIAS. The net thrust became proportionally more negative as the PLs were moved toward the ground idle gate, and in the ground idle gate, the net thrust was negative 4,000-inch pounds at 120 KIAS.

The airplane's flight path was reconstructed using recorded radar data. Manual calculations and airplane performance computer programs defined a flightpath consistent with the recorded radar data. At 1432:43, the airplane was at a point 2.5 miles from the threshold, descending from 2,000 feet at 1,000 fpm traveling at 170 KIAS. About one mile from the threshold, the airplane's speed was about 150 KIAS, and it continued to descend at a rate of 1,000 fpm. At about one-half mile from the threshold, it slowed from about 140 KIAS to about 80 KIAS within 20 seconds. The airplane started leveling off during the last part of the deceleration. The descent increased about the time 80 KIAS was reached.

Computations indicate that about 3,000-inch pounds of negative thrust were required to decelerate the airplane to match its computer-generated profile. The PLs would have been in the beta mode near the ground idle gates for 15 to 20 seconds to produce 3,000 pounds of negative thrust.

Witness statements also support the conclusion that the Captain selected the beta mode in flight. Witnesses, in the airplane and on the ground, reported hearing unusual engine sounds immediately before control of the airplane was lost. Many witnesses reported the airplane appeared high on final approach, and some stated it also appeared to level off on short final. Subsequently, some witnesses observed the airplane make a slight right bank before it banked sharply to the left. The right and left banking could have occurred when the Captain encountered lateral and directional control problems from asymmetric power. This can easily occur when operating in the beta mode because of differences in PL rigging, fuel control unit operation, or differing propeller recovery rates when the PLs are returned to the flight idle gate.

PROBABLE CAUSE

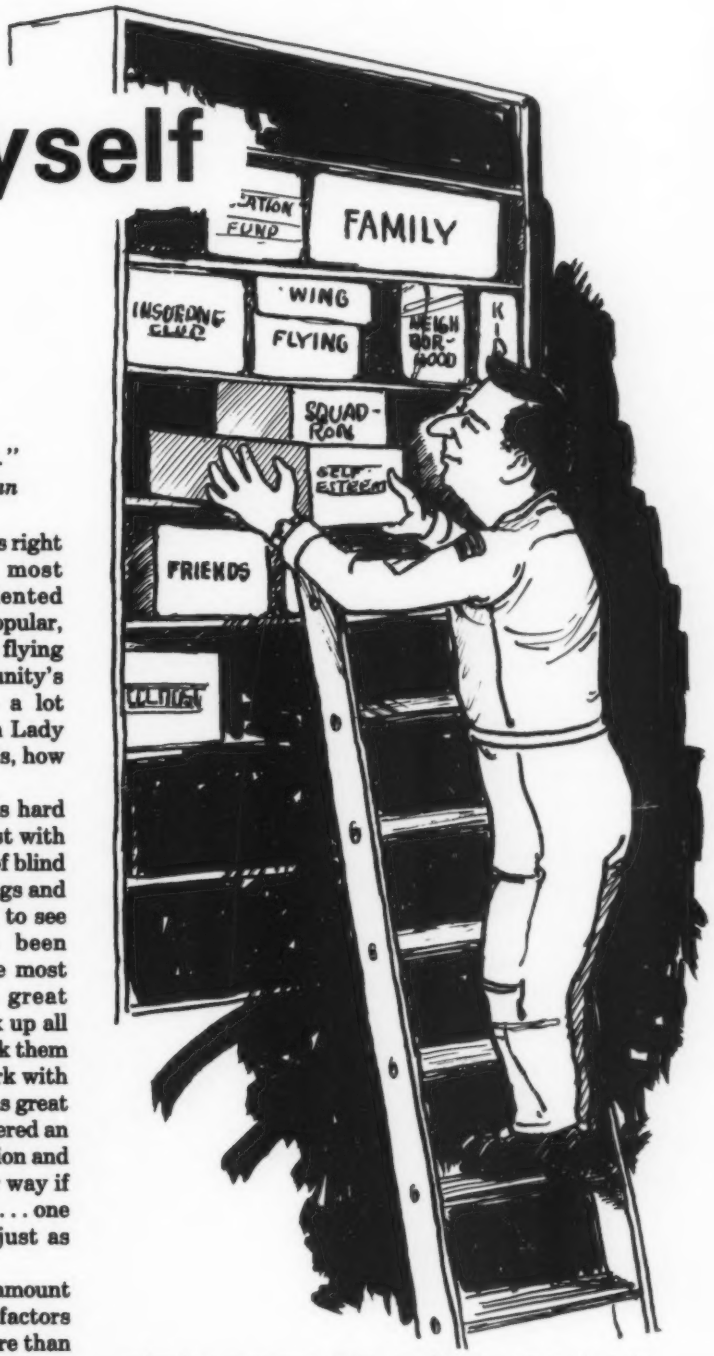
The National Transportation Safety Board determined that the probable cause of the mishap was the Captain's inability to control the airplane as he attempted to recover from an asymmetric power condition, at low speed, following his intentional use of the beta mode to descend and slow the airplane rapidly on final approach.

APPLICATION TO MAC

The Captain was reportedly a very experienced, thorough, competent, and conscientious pilot. However, many of his reported actions were contrary to what you would expect from a senior pilot. He demonstrated an apparent disregard for safe operating practices in conducting visual approaches by making steep approaches at high rates of descent where such approaches were unnecessary. Whatever the level of personal flying ability a pilot may think he has, what possible reason would justify taking totally unnecessary risks? When a pilot knowingly deviates from accepted procedures, he is gambling with not only his own life, but the lives of everyone aboard.

Adapted from *NTSB/AAR-88/08*

Pilot, Know Thyself



By Maj. Thomas A. Farrier
Chief, Human Factors Studies
Hq MAC/QSSF

"A man has got to know his limitations."
Inspector "Dirty Harry" Callahan

The little bit of wisdom quoted above ranks right up there with Clint Eastwood's most memorable lines. However, pilot-oriented publications usually tend to repeat the ever-popular, "Do you feel lucky?" when talking about the flying business. Frankly, despite the pilot community's occasionally superstitious perspective, it's a lot smarter to rely upon yourself rather than on Lady Luck in the aviation game. The big question is, how do you know when you're reliable?

The answer to that particular question is hard to come by, even when you're basically honest with yourself. Part of being human is having a lot of blind spots. Those relating to your own shortcomings and failings are some of the biggest and hardest to see around. The "pilot personality" has been characterized in many ways, but one of the most popular theories is that we are great "compartmenters." It's natural for us to box up all the different components of our lives and stack them on psychic shelves, pulling them down to work with the contents only as needed. This capability has great advantages most of the time, since it's considered an important part of our capacity for concentration and appropriate reaction. However, it gets in our way if we don't have a box with our own name on it . . . one we can open just as readily and clean out just as easily as the others.

The Air Force is spending a considerable amount of time and resources on the study of human factors in aircraft mishaps. If you've been flying more than just a couple of years, you've probably seen a significant growth in human factors-related subjects at safety meetings, in the Instrument Refresher Course, at the simulator, and in the altitude chamber refresher program. The trouble is, your time is valuable and training time is especially hard to parcel out. There are plenty of competing interests that would give a lot for a few more hours a day, a week,

a month, or even a year with you. Unfortunately, there are only 168 hours in a week, and it takes a pretty big chunk of that time to fly all the channel missions, missile site support taskings, and DV sorties MAC is expected to complete. This means when time is allocated for training, some subjects get priority handling, just like duty passengers and cargo, while others get filled in wherever possible, like space-A travellers.

In the case of human factors, your training is usually prioritized in favor of the kinds of problems we see most frequently, like aircrew coordination, hypoxia, spatial disorientation, and "self-imposed stress." There are quite a few other human factors you should be aware of, but they're relatively invisible; they aren't very often the direct cause of mishaps, so they don't get the "blood priority" in training time. The trouble is they're some of the most insidious; they're a part of who you are, and they dictate to a large extent how you might react in a critical situation when other factors are stacking up against you.

"Stacking up" itself, for example, has a human factors name: *task saturation.* You probably have a pretty good feeling about how you tackle multiple problems that pop up at the same time. After all, one of our strong suits is our problem-solving ability (and most pilots aren't hurting in the ego department, either). However, another aspect of task saturation involves not only juggling all the balls thrown at you, but doing so in the appropriate (or best) order. You may be great at managing multiple tasks in a logical sequence under ordinary conditions. What about when you're tired, or dehydrated, or going into an unfamilar airfield at night?

Here's another "invisible" human factor: *motivation.* Sometimes it's hard to get yourself psyched up for the next leg of a long off-station mission, right? How about when you have to go up into the local radar pattern because you're due an approach and the weather is marginal? What if you're coming home after an extended trip and get an add-on tasking bound to keep you on the road beyond the time when the checks and clean underwear will run out? Just about every flyer can grit his or her teeth and roll with these inconveniences, but they contribute to a state of mind that may not let you be at your best if something else suddenly hits the fan.

It's rather unsavory to question a pilot's *judgment, decision-making,* or *self-discipline,* since those are a few of the main ways we evaluate each other, but they're also some of the hardest traits to self-monitor. When confronted with other stressors, one of a pilot's most natural means of problem-solving is to switch into a "rationalization" mode: "Well, I can get back to the home drome tonight despite these headwinds . . . plenty of fuel . . . all I have to do is change the ETA . . . we'll be a little long on crew day, but they need the aircraft back on the ramp . . . ." Familiar pattern, isn't it? It may even lead to a reasonable decision, as long as your tired crew doesn't suddenly wind up contending with bad weather, leaking cargo, or any of the many other unpredictable situations that dog us all from time to time. "Pressing" can be a good example of both questionable judgment and flawed decision-making. Depending on the circumstances, it may signal a failure of self-discipline as well.

Finally, consider two of the most difficult-to-recognize human factors: your *awareness* and your *insight* (otherwise known as "self-awareness"). Deficiencies in these areas are particularly dangerous, since the ability to spot them in yourself is dependent on how much you can indulge in self-doubt and reflection while still functioning in the aviation environment, or if you can do so at all. To be indecisive in an aircraft is to be in danger; however, it's just as dangerous to get distracted by less important tasks or problems, to narrow your attention too much, or to get overly confident in how you're managing one or many complicated tasks. You might recognize these traits by their more common buzzwords: distractions, channelized attention, and complacency. Although better known, these are "invisible" human factors because they're so hard to see on your own. Unfortunately, they crop up time and again in operations-related mishaps. Safety investigators usually do a good job of identifying them when they come into play, but when their findings are passed on to the crew force . . . well, one other not-so-great part of the pilot personality is a sense of invulnerability. When you sit there and think, "that couldn't happen to me," you're denying yourself a lesson written in somebody else's blood or sweat. That particular failure of insight could be the most expensive of all.

The key to dealing with human factors is to recognize they are the most predictable, and to some extent the most controllable of the many variables in your environment. Human factors rarely come into play in benign or routine situations. They pop up and complicate already complicated scenarios a little further. That's why understanding and coming to grips with them is so important. Whenever you fly, you need to run a quick "self-test." The short breather you take while rethinking things may be enough to let you keep juggling . . . or at least pick up the balls you've dropped before you drop anymore!

CRAF: The Civil Reserve Air Fleet

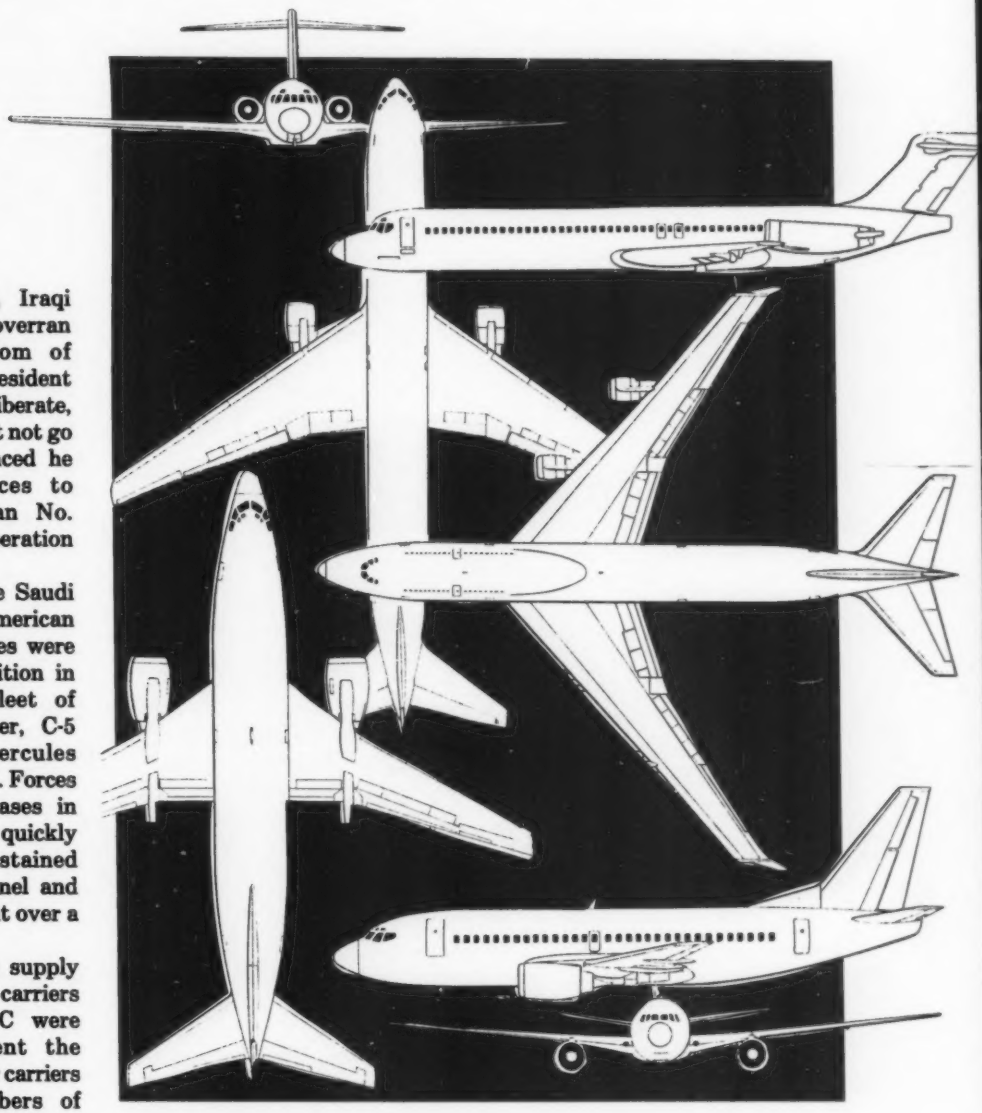
By C. V. Glines

On 2 August 1990, Iraqi forces invaded and overran the neighboring kingdom of Kuwait. On 6 August, President Bush decided that such deliberate, calculated aggression must not go unchallenged. He announced he had ordered U.S. Forces to activate Operations Plan No. 90-1002, code-named Operation DESERT SHIELD.

At the request of the Saudi Arabian government, American ground, sea, and air forces were quickly ordered into position in the Saudi desert. A fleet of Lockheed C-141 Starlifter, C-5 Galaxy, and C-130 Hercules aircraft began moving U.S. Forces and their supplies to bases in Saudi Arabia. The effort quickly became the largest sustained airlift of military personnel and equipment ever carried out over a short period of time.

When personnel and supply requirements grew, U.S. carriers under contract to MAC were called upon to augment the deployment. The major air carriers volunteered large numbers of aircraft on a charter basis to transport troops and cargo. The carriers were using "normal" contractual arrangements.

The Military Airlift Command soon realized its aircraft and civilian charter flights combined could not get the job done without adding aircraft that were totally committed to the effort. An



"The wisdom of the CRAF concept formulated nearly 40 years ago has now been proven."

" For the first time in history, U.S. airlines have been called up to support deployment of U.S. military forces."

unprecedented number of large, long-range passenger and cargo aircraft from the commercial airlines would be needed to build a formidable desert force and sustain it for an indefinite length of time.

On 17 August, two weeks after Iraq invaded Kuwait, Gen. Hansford T. Johnson, Commander-in-Chief of the U.S. Transportation Command and Military Airlift Command, announced publicly he was activating Stage I of the Civil Reserve Air Fleet (CRAF) to support the mounting airlift requirements.

CRAF Concept

The CRAF concept was born in 1951 when President Harry Truman signed an Executive Order authorizing civilian transport aircraft for future military use. Having these civilian airplanes available to the Department of Defense would greatly increase the number of aircraft the United States could use for long-range airlift in time of national need.

Taking advantage of the ever-increasing payload, speed, and range of modern civilian aircraft became a key planning element of the Department of Defense's emergency air transport system.

CRAF was not activated during the Korean and Vietnam Wars because U.S. civil carriers voluntarily supplied the necessary aircraft by charter. The 17 August call-up was the first time CRAF-committed airlines were notified they were on call to provide aircraft, flight crews, ground personnel, and equipment during an international crisis.

Aircraft committed to CRAF are assigned to one of five categories: long-range international, short-range international, Alaskan, domestic, and aeromedical evacuation. The long-range category is made up of passenger and cargo aircraft capable of flying 3,500 nautical miles (nm) and carrying large payloads. They include McDonnell Douglas DC-8s and DC-10s; Boeing 707s, 747s, and 767s; Lockheed L-1011s, and Airbus A310s.

Short-range international aircraft fly missions from the United States to such locations as the Caribbean, Greenland, and Iceland. Boeing 727, 737, and 757 aircraft with a 2,500-nm range are assigned to this group.

The Alaskan segment is designed to support movement requirements on the Alaskan mainland and the Aleutian chain. Aircraft such as the Lockheed L-188 and the McDonnell Douglas DC-8, which normally fly in that demanding environment, are assigned to this segment.

Aircraft in the domestic group provide backup airlift for the Air Force and Naval Logistics Distribution Systems in the contiguous 48 states. Only cargo-carrying aircraft with ranges of at least 400 nm are selected for this category.

A new CRAF category was created in 1986 to provide aircraft that can be quickly modified for aeromedical evacuation missions. This group consists of Boeing 767s and McDonnell Douglas MD-80s.

Because CRAF is not required for all emergencies, it is separated into three phases or "stages." This allows the Air Force to activate only the number of reserve aircraft needed for the emergency at hand.

Stage I or "Committed Expansion" consists of 17 passenger and 21 cargo aircraft. MAC's commander may activate these 38 aircraft. If all MAC aircraft are occupied with urgent military needs, Stage I airplanes help fly routine MAC missions.

Stage II or "Airlift Emergency," which may be activated when approved by the Secretary of Defense to support an airlift crisis, adds 80 passenger and 60 cargo airplanes to those in Stage I. Aircraft in both stages must report within 24 hours.

Stage III or "National Emergency," is made up of all 506 CRAF-committed aircraft (278 passenger, 197 cargo, and 31 aeromedical) and may be activated when approved by the Secretary of Defense after the President or Congress declares a national emergency or general war, or in support of a defense-oriented national security situation. Response time is 48 hours.

CRAF aircraft use is based on individual contractual agreements between the government and each air carrier. These agreements provide that a carrier's schedules will be disrupted the minimum amount possible and only aircraft MAC actually needs will be called. When MAC no longer needs the aircraft, they will return to commercial operations.

All flight crews and ground personnel assigned to CRAF operations remain on the payroll and continue to receive benefits from their airline employer. Each carrier determines the rate of pay for its employees. Those in the following job categories are afforded the courtesies of officers in the military services:

a. All aircraft personnel

b. All supervisory personnel

c. All professional and technical personnel including dispatchers, meteorologists, doctors, and nurses.

Airline captains, first officers, and supervisory personnel (maintenance supervisors, flight dispatchers, meteorologists, and doctors) are considered field grade officers in the grades of colonel, lieutenant colonel, and major. Flight engineers, navigators, cabin attendants, passenger agents, and certain specified job positions (generally supervisory) are given company grade status: captain, first lieutenant, second lieutenant, and warrant officer. Most other airline personnel are considered to hold noncommissioned rank: chief master sergeant, technical sergeant, staff sergeant, and sergeant.

The equivalent military rank assigned to civilians CRAF carriers employ is based on the grade and salary each carrier has established. All civilians who accompany the armed forces receive a Geneva Convention Identity Card certifying they are associated with the U.S. Air Force and showing their position title and equivalent military rank as designated by the employing carrier.

All flight deck crewmembers flying CRAF missions, those engaged in CRAF planning, flight dispatchers, and others specified in MAC regulations, are required to possess a security clearance for access to information classified as secret. These clearances are limited to U.S. personnel only.

OPERATION DESERT SHIELD

At a 21 August Pentagon press conference, General Johnson, explained the magnitude of the airlift requirements MAC had to meet. "We decided a long time ago that we would use commercial aircraft to take all our people. We have taken some people on military aircraft, the cargo aircraft, but those are people who go along with the cargo. We've not displaced any cargo to carry people on military aircraft. As the ships began arriving, we found that volunteers in the commercial sector weren't sufficient to take care of our needs. We had volunteers up to 12, 14 airplanes, but we needed more. That's why we called CRAF-I. If we find a greater need for aircraft, then Stages II or III can be called."

General Johnson noted several actions can be taken before CRAF goes to stage II: "We can go out and ask for volunteers in the U.S. flag market and perhaps even volunteers in the foreign flag market. We will try to work those before going to a higher stage; but if we need to, we certainly can."

Are CRAF aircraft and crews in danger when they fly into the Third World countries of the Middle East?

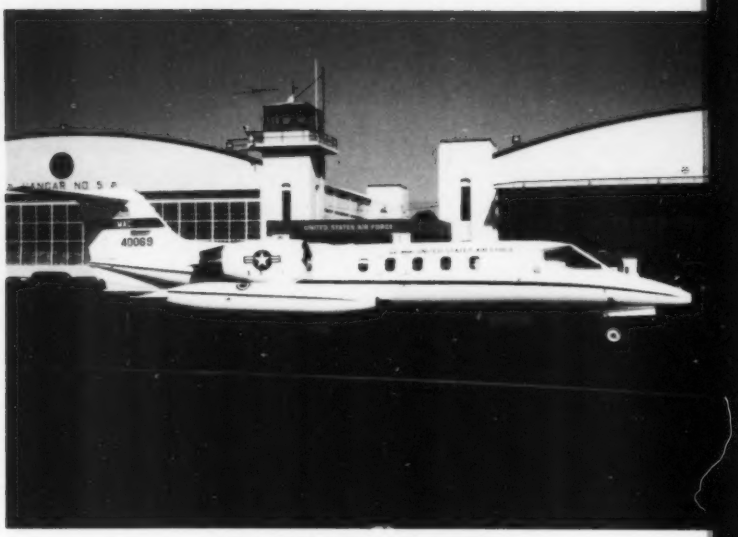
According to MAC regulations, "CRAF crews are not expected to accept the same hazards as military personnel; therefore CRAF missions must be assured a degree of safety from enemy actions."

MAC sources have pointed out that "the availability and proliferation of inexpensive, shoulder-fired, surface-to-air missile systems such as the Soviet made SA-7 *Grail* and SA-14 *Gremlin*, have made it relatively easy for a Third World country or a terrorist band to shoot down a multimillion-dollar aircraft carrying multimillion-dollar cargo.

As long as American forces remain in the desert, they must be kept supplied. Therefore, no one can say how long the need for CRAF will continue. However, the wisdom of the CRAF concept formulated nearly 40 years ago has now been proven. Airlift is undisputedly vital for transport of conventional military forces to any point on the globe.

Adapted by permission from *Airline Pilot*.

The C-21—Seasoning



C-21 on the ramp at Pope AFB.

Postgraduate Pilot Training

By Lt. Col. Richard L. Buck
Supervising Editor

"In three years, we provide some of the best-trained pilots the Air Force could possibly get for the money we spend on them." These words, by Lt. Col. Robert E. Dorough, Commander, 1401st Military Airlift Squadron, echoed in my ears as I boarded the crew bus with my C-21 crew of two first lieutenant pilots on a recent cold and rainy November morning. Colonel Dorough continued, "We put 1,300-1,500 hours on a young guy in about three years. Then we send him out to fly C-130s, C-141s, or C-5s. I would put the guys we send out there up against any line pilot who has been in a weapon system for the same length of time. I think the Operational Support Airlift (OSA) guy is more experienced. The OSA guy flies every third or fourth day and goes into a myriad of different fields—military and civilian. A typical mission may take him from home station to Andrews, La Guardia, Langley, Eglin, and back home. He gets four to five stops, six hours of flight time, and hauls very important people."

Our mission that day would

take us from Scott AFB, Ill., to Pope AFB, N.C., to upload an Air Force major general and his party. We would take them to Charleston AFB, S.C., wait three to four hours while they conducted their business, and drop them off at Dover AFB, Del., on our way back to Scott.

A typical C-21 crew day starts out much the same as others in MAC. The crew shows at base operations two hours prior to takeoff. The first hour is spent checking weather, NOTAMS, and fuel requirements, filing flight plans, and touching base with contract maintenance on the status of the aircraft. The second hour is spent at the airplane where one pilot does the interior checks while the other does the exterior inspection. The First Pilot for the flight, 1st Lt. David R. Hasslinger, explained. "Normally, we can complete what needs to be done and be ready 30 minutes prior to takeoff. We try to do this not only at home station, but at every stop. If we have a flying Distinguished Visitor (DV) for the first leg (that is, one who actually flies the aircraft), we get out to the bird a little early so we can do the appropriate checks and get the engine-run out of the way before he arrives. That way we're ready to go when he gets to the plane."

Lt. Hasslinger flight-planning.

Such was not the case on the morning of our flight. As we approached the aircraft, I couldn't help but be impressed by its sleek lines and aerodynamic appearance. I asked 1st Lt. Joel E. Knisely, the Aircraft Commander, about the aircraft itself. "We've had the C-21 since 1984," he replied. "As with most new aircraft, we started out with contract flight manuals but now have actual Air Force Dash Ones. The C-21 Learjet, better known in the civilian world as the Lear 35A, can be used to haul passengers or cargo, or can be configured with two litters and flown as an aeromedical evacuation aircraft. The empty gross weight is 10,500 pounds and the maximum is 18,300. A normal fuel load of 4,800 pounds gives us about four hours endurance. This equates to between 1,500-1,800 nautical miles. With a full fuel load, we can fly for about five hours and cover between 2,000-2,500 miles, and with a ferry tank installed in the cabin, we can make up to about 3,000 nautical miles. All of this depends on weather, of course."

As long as we were on the subject of the aircraft, I asked Lieutenant Knisely about the maintenance of the C-21. "Our maintenance is done by contract," he explained. "GLASCO (Gates Learjet Aircraft Services Corporation) provides the service and they do an extremely good job. We have very few problems. Our reliability and in-commission rate is very high. Having good maintenance with six-year-old planes enables us to concentrate on the job and do a lot of different things with a pretty reliable airplane."

Preflight, takeoff, and departure were uneventful. En route to our onload base, I asked Lieutenant Hasslinger about the C-21 missions. "DV support and airevac make up the majority of our missions," he explained. "We also do local training, to include Tactical VFR Training (TVT), and some limited high priority logistical resupply. A secondary by-product but complementary mission, is pilot seasoning. It can allow you to transition to a major weapon system with some experience flying in the ATC environment. It also allows you to transition to the left seat easier and quicker than if you didn't have the experience and had just come out of UPT. The bottom line is it saves money for the Air Force and taxpayers. The C-21 is a much cheaper platform to train pilots on

Lt. Hasslinger preflighting the aircraft interior.

Lt. Knisely reviewing the IFR Supplement.

than a C-5, C-141, or C-130. We talk about our fuel in hundreds of pounds whereas the 'big three' talk about it in thousands. It's a lot less expensive to get hours and experience."

This brought to mind something Colonel Dorough had said. "The real purpose of OSA is pilot seasoning. The real purpose of OSA is also high-priority DV airlift. They fit together like a pair of winter gloves where one part goes into and complements the other to make the overall product better. We get a lot of hours on these young guys as we season them, and we've got an empty cargo compartment, so why not carry somebody around. We season them while providing airlift so it works out great. The unit mission description on our OPRs states that we 'provide the operational support airlift of personnel and cargo with time, place, or mission sensitive requirements during war or peacetime and contingencies. We maintain the capabilities to deploy overseas and provide flying experience to recent undergraduate flying training graduates.' It gives you the impression that the foremost mission is airlift. I guess you could say that it is probably our most visible mission, but along with that is the seasoning of the young guys. It's a dual mission." Part of that dual mission is TVT. There are currently two instructors qualified at Scott, with numerous others checked out throughout the command. As Colonel Dorough explained, "Our intention is not to make combat VFR pilots out of our young guys. We try to give them a thorough indoctrination in low-level flying (1,000 feet AGL with map reading and random approaches to airports) and a little continuation training. That way they understand it so if they get into a situation where they need it, they at least know the basics. Additionally, it gives them a baseline so when they get into one of the other MAC weapon systems, that knowledge can be fine-tuned and built on. We train them with four sorties and require a minimum of two sorties on a semiannual basis. The airframe time comes out of our own training time which forces us to better manage the hours available."

The approach and landing at Pope was flawless. The avionics package the Air Force chose to supplement the C-21 airframe is impressive, to say the least. It is top-notch, with dual autopilots and dual flight directors at a minimum. Rendezvous with our DV and upload of baggage went smoothly, and we were soon on our way to Charleston. En route, I asked Lieutenant Knisely about the pilot force in general; how much flying and training they get, what the force structure is like, and what alerts consist of. He said, "Flying time averages about 40 hours per month. Some IPs get more because of the flying DV requirement and, consequently, some ACs get less, but 40 is about average. Initial and instructor upgrade training are done by the 1375th Flying Training Squadron (FTS) at Scott. All AC upgrade is done in-house at unit level and the simulator training (both initial and annual refresher) is done through contract by Simuflite down in Dallas. They do an excellent job and really stress good cockpit coordination training. The crew ratio is 1.13:1 so a typical six-airplane detachment is authorized 14 pilots with two overhead (commander and operations officer). Often the numbers are a bit higher with new pilots coming in and others moving on to other weapon systems. All units do not have the same number of aircraft either. On the average, there are about 20 pilots per squadron with 15-30 at each detachment. There are 10 C-21s at Scott of which four belong to 1375 FTS. Obviously, the crew force consists strictly of pilots, of which 25 percent are prior qualified in other aircraft and 75 percent are straight out of pilot training. As far as alert is concerned, we're getting into a shared alert system where the responsibility rotates between

units for a specific interval. You're on alert from 0700 one day to 0700 the next. It's more cost-effective that way. Chances of getting launched off alert are about 20 percent with half going to air evac and half going to DV support. Alert is pulled over and above normal requirements. The shared alert concept proves units can be time sensitive enough to provide top-notch service to users and, at the same time, share the burden. Obviously, the frequency of alert varies with location and number of pilots available."

The leg to Charleston was uneventful, and we arrived right on time. With better than three hours to kill before departure, we were able to eat and further explore the C-21 mission. Lieutenant Hasslinger offered comments. "Much of our time is spent waiting; it's the nature of the job. It's typical to deliver a DV to a location and spend a few hours 'eating lunch.' Our biggest concern is the flexibility of the schedule from the users' point of view. There's a lot of 'hurry up and wait.' When the user is late, we do our best to make up the time within safety guidelines. Whereas a C-130 strives to make a time-over-target, we make a block time so the DV gets to where he needs to be.

"There are some differences flying OSA that you don't find in the rest of MAC—like always getting 'spot one' in front of base ops; always having fuel and passenger service waiting for you; always having the red carpet rolled out—not necessarily for you, but the fringe benefits are there. It takes some getting used to—taxiing up and having a three-star general salute your airplane because there's a four-star on board. You get used to working with DVs. It takes some time to develop the necessary tact. IPs must know their own limitations.

Before long, it was again time to take to the skies with our distinguished entourage. The short flight to Dover was frought with radio calls of conflicting traffic which the crew handled with the calm professionalism of seasoned aviators. Once on the ground, we again had time to discuss the basic organization of the C-21 world as the aircraft was refueled. Lieutenant Knisely laid out the organization. "Flying is pretty regionalized for the most part due to the locations of the C-21 squadrons and detachments. The 1400 MAS at Norton AFB, Calif., with detachments at Randolph AFB, Tex., and McClellan AFB, Calif. (also a C-12 detachment at Nellis AFB, Nev.,) handles the West Coast. The 1401 MAS at Scott AFB, Ill., with detachments at Barksdale AFB, La., Offutt AFB, Neb., Wright Patterson AFB, Ohio, and Peterson Field just outside Colorado Springs, Colo., handles the central part of the country. The 1402 MAS at Andrews AFB, Md., with detachments at Langley AFB, Vir., Eglin AFB, Fla., and Maxwell AFB, Ala., covers the east coast. The 1403 MAS at Yokota AB, Japan, covers the Pacific area and the unit at Ramstein AB, Germany, (part of the 58 MAS) handles the European theater. The C-21 is one of the many aircraft operated by the 58 MAS in Europe." As a side note, Lieutenant Knisely mentioned that the Barksdale and Maxwell detachments were currently deployed to the Middle East performing the C-21 wartime mission.

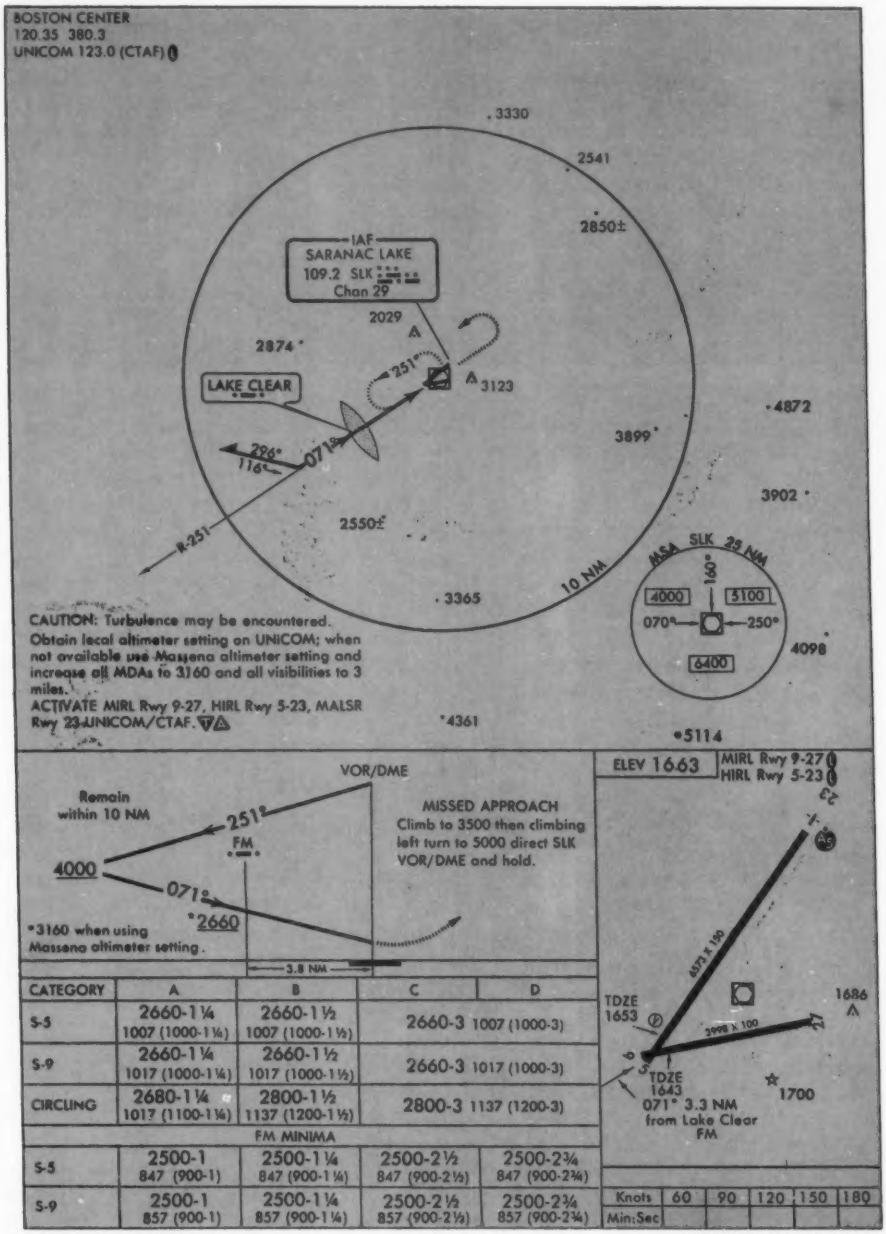
Soon, it was time to begin the flight back to Scott where the mission had originated some ten hours earlier. Along the way, Lieutenant Hasslinger discussed more of the high points of C-21 flying. "We do a lot of flying into civilian fields and some of it is air shows, static displays, and safety fly-ins. It's not uncommon for us to be the biggest airplane there. The fly-ins are a valuable exchange of safety information with the private aviation community—an environment where we spend a lot of time. It's nice to go to a fly-in where the majority of people are aviators of one sort or another. The FAA is a big player in sponsoring a lot of these safety fly-ins.

"In addition to the stateside stuff, we have a Panama rotation that is shared equitably between the three stateside squadrons. There are always two crews with one aircraft in Panama. The crews alternate, swapping out every 15 days, and each spends a month in the area. Crews from all detachments participate and are picked as people become available, giving everyone a chance. There is also a field-grade mission commander in theater at all times. Crews are attached to the 61 MAG while in theater and fly missions validated by Southern Command J-3. Missions cover Central and South America with numerous runs between Howard AFB, Canal Zone, and Andrews."

Before long, we were taxiing to parking at home drome. The flight had been action-packed, and we were all a bit weary. As the pilots left to complete the post-flight paperwork and I headed toward the parking lot, something Colonel Dorough mentioned earlier, struck home. Having flown C-130s for many years myself, his meaning was apparent when he said, "Flying the C-21 is an extremely rewarding experience. These young pilots are some of the best in the business for their experience level. I consider myself honored and priviledged to play such an important role in their continuing education. It's a great job!" There was no doubt in my mind what he meant.

TMF Instrument Quiz

One Approach Serving Two Runways



CATEGORY	A	B	C	D
S-5	2660-1¼ 1007 (1000-1¼)	2660-1½ 1007 (1000-1½)	2660-3 1007 (1000-3)	
S-9	2660-1¼ 1017 (1000-1¼)	2660-1½ 1017 (1000-1½)	2660-3 1017 (1000-3)	
CIRCLING	2680-1¼ 1017 (1100-1¼)	2800-1½ 1137 (1200-1½)	2800-3 1137 (1200-3)	
FM MINIMA				
S-5	2500-1 847 (900-1)	2500-1¼ 847 (900-1¼)	2500-2½ 847 (900-2½)	2500-2¾ 847 (900-2¾)
S-9	2500-1 857 (900-1)	2500-1¼ 857 (900-1¼)	2500-2½ 857 (900-2½)	2500-2¾ 857 (900-2¾)

VOR RWYS 5 & 9

44°23'N-74°12'W

281

SARANAC LAKE, NEW YORK
SARANAC LAKE/ADIRONDACK (SLK)

1. This straight-in approach can be flown to two different runways. What navigation aid is used for final approach course guidance?

a. VOR/DME.
b. VOR and marker beacon.
c. VOR.
d. TACAN.

2. The omission by ATC of a specific type (VOR, ILS, TACAN, NDB) in the approach clearance indicates that any published instrument approach to the aerodrome may be used.

a. True.
b. False.

3. This approach is an example of:

a. Procedure Turn.
b. Procedural Track.
c. "NoPT" routing.
d. Non-FAF Procedure Turn.

4. For procedure turns where the NAVAID (VOR or NDB) is on the airfield and no FAF is depicted, plan the outbound leg so that the descent to MDA can be completed with sufficient time to acquire the runway and position the aircraft for a normal landing.

a. True.
b. False.

5. You may descend from 4,000 feet MSL, the procedure turn altitude, when the aircraft:

a. Is abeam the procedure turn fix outbound.
b. Is established on the inbound segment of the published approach.
c. Will remain within 10 NM of the VOR.
d. Is configured for landing.

6. FM minima can only be used by aircraft equipped with an AM/FM radio.

a. True.
b. False.

7. The "dot-dash-dot" below FM on the profile view is:

a. Morse code for the letters "F" and "M."
b. Light flashing sequence for the DME.
c. Keying sequence for the Lake Clear fan marker.
d. Audio signal for Saranac Lake DME.

8. Boston Center gives you the Massena altimeter setting during descent into the Saranac Lake area. What will the category "C" approach minimums be for the straight-in to Runway 9 using that altimeter setting?

a. 2,660 feet and 3 miles visibility.
b. 2,800 feet and 3 miles visibility.
c. 3,160 feet and 3 miles visibility.
d. 2,500 feet and 2½ miles visibility.

9. After turning outbound from Saranac Lake (SLK) VOR, your aircraft is on the SLK 234-degree radial with an airspeed of 180 KTAS. The wind at your altitude is 236-degrees True at 35 knots and magnetic variation is 14-degrees West. Which of the following applies?

a. Correct toward the procedure turn course using an intercept angle of at least 20 degrees.
b. Maintain course for the remainder of the outbound leg, then turn toward the maneuvering side to reverse course.
c. Maintain heading to parallel the outbound leg, then turn toward the maneuvering side to reverse course.
d. If the procedure turn course is intercepted outbound, maintain course for the remainder of the outbound leg, then turn toward the maneuvering side to reverse course.

10. Timing for either the teardrop or parallel maneuver begins when outbound abeam Lake Clear.

a. True.
b. False.

11. If you cannot determine the abeam position while in the turn, start timing after completing the outbound turn.

a. True.
b. False.

12. Pilot controlled lighting at Adirondack includes the VASI lights for Runway 5.

a. True.
b. False.

13. Keying the microphone on UNICOM 123.0 will activate which airfield lights at Adirondack?

a. HIRL Runway 5-23.
b. MALSR Runway 23.
c. MIRL Runway 9-27.
d. All the above.

14. The "CTAF" after the UNICOM frequency stands for:

a. Civil Tower Arrival Frequency.
b. Click Twice After dark.
c. Common Traffic Advisory Frequency.
d. Common Talking Advice Frequency.

15. Timing is required when the final approach fix does not terminate at a published fix, as is usually the case with VOR, NDB, and localizer approaches. For this approach start timing when passing:

a. Lake Clear FM.
b. Saranac Lake VOR.
c. Briel LOM.
d. Timing is not required.

16. The highest elevation shown on this approach is:

a. 6,400 feet.
b. 4,361 feet.
c. 4,872 feet.
d. 5,114 feet.

17. The obstacle clearance area provided for the missed approach is predicated on beginning the missed approach at the MAP.

a. True.
b. False.

18. When a missed approach climb gradient is not published, climb at least _____ in order to clear obstructions.

a. 200 feet per NM.
b. 300 feet per minute.
c. 152 feet per NM.
d. 200 feet per minute.

THE ANSWERS

1. c. Straight-in approaches are identified by the types of navigation aids which provide final approach guidance and the runway to which the final approach courses are aligned. This approach serves two runways by having the final approach course within 30-degrees of each runway. (AFM 51-37, para. 7-6a(3)(a).)

2. a. True. ATC normally issues a clearance for a specific type of approach (VOR, ILS, TACAN, NDB). Omission of a specific type in the approach clearance indicates that any published instrument approach to the airfield may be used.

3. d. This is a "Non-FAF Procedure Turn' which is used when a VOR or NDB is on the field. (AFM 51-37, para. 12-2e and Fig. 12-2.)

4. a. True. For procedure turns where the NAVAID is on the airfield and no FAF is depicted, plan the outbound leg so that descent to MDA can be completed with sufficient time to acquire the runway and position the aircraft for a normal landing. Consideration should be given to configuring on the outbound leg to minimize crew tasking on final. Another possibility is to compute a visual descent point to provide a reference as to when you should be at MDA for a normal landing. (AFM 51-37, para. 12-2e.)

5. b. Descend from the procedure turn altitude when the aircraft is established on the inbound segment of the published approach procedure. (AFM 51-37, para. 12-2e.)

6. b. False. FM refers to the fan marker. Aircraft equipped with an operational marker beacon can use the FM minima providing there are no other restictions (such as NOTAMS, altimeter settings, or inop equipment). (FLIP Terminal, General Information & Legend.)

7. c. Keying sequence for the Lake Clear fan marker, producing a dot-dash-dot (Morse code "R") flash of the marker beacon light as well as an audio signal for those who listen to the marker beacon. Fan markers usually transmit Morse code for the letter "R"; alternate letters are K, P, X, and Z. (AFM 51-37, Fig. 5-4.)

8. c. 3,160 feet and 3 miles visibility as stated below the caution on the plan view of the approach.

9. c. Maintain heading to parallel the outbound leg, then turn toward the maneuvering side to reverse course. If the entry turn places the aircraft on the nonmaneuvering side of the procedure turn course and you are flying in excess of 180 KTAS, you must correct toward the procedure turn course using an intercept angle of at least 20-degrees. (AFM 51-37, para. 12-2b.)

10. b. False. SLK is the procedure turn fix. (AFM 51-37, para. 12-2d.)

11. a. True. If you cannot determine the abeam position while in the turn, start timing after completing the outbound turn. (AFM 51-37, para. 12-2d.)

12. b. False. Pilot controlled lighting systems are indicated by negative symbology. (FLIP Terminal General Information & Abbreviations)

13. d. At Adirondack, activate runway lighting for Runways 9-27 and 5-23, and Runway 23 approach lights using 123.0 (Note on the approach plate.)

14. c. Common Traffic Advisory Frequency. A frequency designated for the purpose of carrying out airport advisory practices while operating to or from an uncontrolled airport. The CTAF may be a UNICOM, MULTICOM, FSS, or tower frequency. (FLIP General General Planning, Chap. 2.)

15. d. Timing is not required for this approach, the approach terminates at a published fix. (AFM 51-37, para. 13-1a(2)(b).)

16. d. 5,114 feet. The point is just below the Minimum Safe Altitude circle.

17. a. True. Obstacle clearance provided for the missed approach is predicated upon the missed approach being started at the MAP. When the missed approach is initiated prior to the MAP, proceed to the MAP along the final approach course and then via the route and altitudes specified in the published missed approach instruction. (AFM 51-37, para. 15-1d.)

18. c. If the missed approach climb gradient exceeds 152 feet per nautical mile (approximately 1½ degrees), the approach chart will depict the vertical velocity required. When the gradient is not published, climb at least 152 feet per nautical mile in order to clear obstructions. (AFM 51-37, para. 15-2e.)

What is the Point?

"Is it hanging out dirty laundry to tell about past mistakes while talking to young pilots?"

By Capt. Jeff Thomas
82 FTW/SEF
Williams AFB, Airz.

There's is an old saying that "Experience is the best teacher." But where does that experience come from and what does it entail? In the aviation community, it's usually a lesson learned firsthand. To name a few, pushing marginal weather, get-home-itis, exceeding personal limits, or flying with a hangover are things most aviators have done "just this once." Those of us who survived the experiences, "that make the hair on the back of your neck stand up," swear we'll never put ourselves in that position again, chalk it up to experience, and press on. Lesson learned; bullet dodged. We internalize the experience and lock it away.

Unfortunately, most of us throw away the key. We tend to treat the experience as a "skeleton in our closet." We prefer not to share it with our peers in an open forum (such as safety meetings) lest our airmanship comes into question. We may share it one-on-one in a casual setting (O'Club bar) as if it's a deep, dark secret, or a "just between you and me" type experience. What's the point, you ask?

When discussing mishaps, there's another old saying, "There are no new causes, just new pilots." During a recent flight safety meeting, I related a personal, dodged bullet whose lessons, in my opinion, bore repeating lest they be duplicated by the naive or uninformed. Later I was approached by a squadron pilot who made a comment along the lines of "hanging out my dirty laundry for all to see."

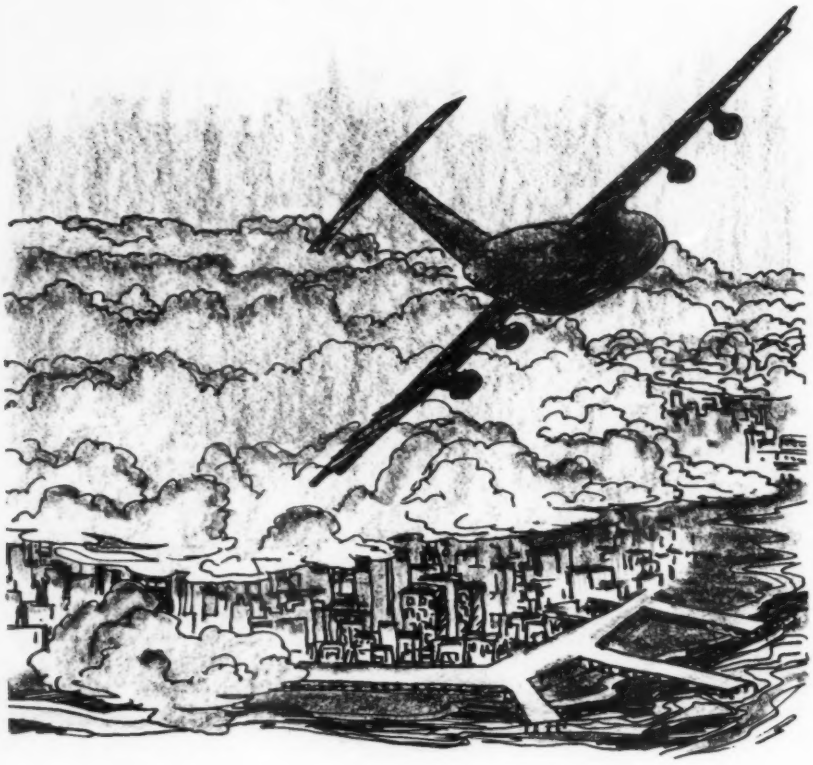
Reflecting on his comment and its implications, I realized being an "older head" in the squadron gave me certain practical experience and wisdom to pass along, a feeling he obviously didn't share. Reflecting on this further, I realized his commitment reflected not only his attitude, but probably the attitude of most aviators in general—the old "better to die than to look bad" way of thinking.

There's yet another old saying, "We should all bear one thing in mind when we talk about a troop who rode one in. He called upon the sum of all his knowledge and made a judgment. He believed in it so strongly that he knowingly bet his life on it. The fact he was mistaken in his judgment is tragedy, not stupidity. Every supervisor and contemporary who ever spoke to him had an opportunity to influence his judgment. So a little of all of us goes in with every troop we lose." (Author unknown.)

That's the point. Experience and judgment can not only be gained firsthand, but through the maturity of others who have been there before. Your shared war stories may help keep others from being snared by the same traps that almost got you. Pushing your aviator pride aside may save a life. There's another old saying, "Those who don't learn from the past are destined to repeat it."

C.R. TERROR

The Rhinestone Flyboy Waives His Resolutions



"Christmas is over and business is business. Time to get back to flying, and what a fine evening it is for flying," wheezed the Global Galaxy Grappler as he struggled to reach the flight deck. It appeared that recent holiday feasts and cold weather had impacted C.R.'s fitness program.

Capt. L. S. Sam, Lt. Blinky Donivan, and MSgt. Max Torque were already at their stations waiting for C.R. to squeeze into the pilot's seat. Sergeant Torque was carefully completing the takeoff data under the close scrutiny of CMSgt. Hank Hayersplitter, a Headquarters MAC Flight Examiner Flight Engineer, who was observing tonight's mission while taking the low cost way of getting back to headquarters. Sergeant Downs soon brought up the weight and balance document for C.R. to scrawl his signature on.

With the paperwork now equaling the operating weight, the Master Manipulator began punching buttons and throwing switches to start engines as takeoff time quickly approached. When all four engines were "turnin-n-burnin," C.R. advanced the throttles, as the scanner scrambled to raise the crew entrance ladder before the Galaxy rolled out of the parking spot.

To the astonishment of Long Sufferin' Sam, the turn out of parking was flawless. Had C.R. possibly taken the words of Col. Fang to heart and indeed resolved to exercise better judgment in aircraft operations? Sam noted however, in comparison with the other parking spots, the one they had just left was completely void of normal AGE found around C-5s. Maybe AGS had removed everything that could possibly be run over or blown away. Not wishing to jinx himself, the airplane, or the rest of the crew, he didn't mention this observation. He did notice though they seemed to be taxiing quite expeditiously.

"Pilot, copilot. Don't you think we're moving a little fast?"

"Nonsense, m'lad. I'm excellent at judging aircraft speed. Why, we're traveling at a mere crawl, no more than 9.9 knots according to my highly calibrated eyeballs," replied the Great One.

"According to the INS, we're doing 25 knots," responded Sammy.

Reluctantly recalling his New Year's Resolution, C.R. brought

the outboard engines into reverse idle to slow the speeding Galaxy back to a respectable pace. As the outboard engines went into reverse thrust, the INS ground speed began to decrease, while blowing snow increased. Before Sammy could caution the Lothario of the Airlift Game, he had placed both engines back into idle and stomped on the brakes to slow the expansive airlifter. With the jumbo jet somewhat under control, C.R. made his usual "before takeoff" briefing and even included, to everyone's surprise, "spiral up" procedures.

"I'll set reduced EPR prior to brake release, climb at min-flap retract speed, and make a 35-degree left bank turn," he announced.

"Pilot, engineer. I'll look up a stall speed and compute a safe climb speed for that bank angle. It'll only take a minute."

"Gadzooks, man! Our gross weight is only six hundred thousand pounds. With this cold weather, these TF-39s will produce more than enough thrust to keep us out of trouble. Besides," continued the Ace of Alibis, "I'm not going to let an on-time takeoff get away from me this year; it was one of my resolutions. Start the line-up checklist, Sergeant Torque."

Max read aloud each of the challenge items and C.R. responded to most; at least the ones he could find in the checklist—some he even knew by memory. The mammoth aircraft straddled the runway centerline—quite a remarkable feat for C.R., who usually lined up well right of centerline. Much to the amazement of his faithful crew, C.R. managed to hold the Galaxy's brakes long enough to correctly set takeoff EPR. Then, with a mighty roar, the aircraft began to rumble down the runway. At rotate speed, he smoothly jerked the nose up to 10 degrees, the wheels left the ground, and C.R. called for "gear up." He increased pitch to 15 degrees and rolled into a left 35-degree bank turn.

"Look!" C.R. exclaimed over intercom. "There's Tassels' weight loss clinic; the Christmas lights are just coming on. I'll just put in a little more bank so you can see the magnificent decorating job I did, Sammy. Take a look for yourself."

Before Sam could spot the lights, the control column began to vibrate. C.R. thought it was just Sammy holding onto the yoke and suffering from caffeine shakes, but Sam recognized the stallimiter warning and called out for stall recovery procedures as he tried to roll out some of the excess bank angle C.R. was holding. With bank angle reduced to 30 degrees the Galaxy climbed quickly to the assigned en route altitude of 7,000 feet for the short flight from Dover to Camp Swampy AAF.

"Sammy, let's show Chief Hayersplitter the lights of Atlantic City. Ask Washington Center for a radar tour of the coast."

"Okay, Boss," replied the ever-obliging copilot. 'Washington Center, Jumbo 91 requests a radar tour up the coast to Atlantic City."

"Jumbo 91, Washington Center. Can't approve that this evening. Maintain six thousand, cleared direct to Coyle."

"Center, Jumbo 91 cancel IFR," responded the Skyways Sultan before Long Sufferin' Sam could read back the clearance. "Come on up here, Chief. I'll show you the sights along the Atlantic coast. These are some of my

favorite gaming establishments—like the Golden Tajh with the hundreds of dancing girls.

"Squawk stand-by, Sammy. We're going down for a close look. We might even catch some of those dancing girls."

Sammy switched from weather to map on the radar for a better look at the coast. Blinky was trying to find a local terrain chart in the map kit C.R. had inspected back at ops and pronounced adequate for tonight's mission. Just off shore, a cloud deck was rapidly beginning to form and descend upon the coast.

The C-5 was slowly getting closer to terra firma in more ways than the Terrorific Trio could imagine. The Boardwalk's bright lights were beginning to fade and falling snow made VFR flying marginal at best, so the Ace of Aerospace turned the heavy lifter inland over an unlit area. Before Sammy could contact ATC to beg for an IFR clearance, unexplained static made the VHF radio unreadable, and what appeared to be St. Elmo's fire danced along the windscreen edges.

"Yeeooww, did you see that static discharge?" asked the Addled Aviator.

"Pull up, PULL UP!" screamed Sammy. "We're at 200 feet . . . 200 feet! Climb back up to just below the clouds until I can get an IFR clearance. Atlantic City Approach, Jumbo 91, seventeen south of Coyle, requesting IFR clearance back to Dover."

"Did you say back to Dover m'boy? We can't let a minor static discharge deter us from our appointed mission. I'm sure there wasn't any serious damage done."

"Boss, before we continue, let the scanner check for damage. We took quite a shake back there. If there's damage, I don't think the maintenance folks at Camp Swampy can cure it," advised Max.

"All right. You convinced me. Plus, I see that stan eval type back there agreeing with you. By the way, what was that clearance back to homedrome, Samuel?"

"Direct Dover, climb and maintain six thousand," answered Sammy.

The scanner reported that the navigation light was out. The flight back to Dover was routine. Conversation was limited to discussion of about how long it would take to inspect for damage caused by the static discharge. C.R. wondered what types of snacks he should order for the next leg.

"Sammy, you take the UHF radio and call Command Post. Let'm know we're on the way back for a minor maintenance problem and that we'd like a quick turn."

"Sure thing Boss. You've got ATC on Victor-two," countered Sammy.

"Dover Operations, Jumbo 91 inbound your station, Alpha-two for possible lightning strike and inop navigation light; estimate the blocks in twenty-five minutes; say the active and weather."

"Jumbo 91, Command Post. Copy block time and alpha status; runway zero-one in use; wind calm and vis okay. Are you declaring an emergency?"

"Not tonight, we think a static discharge caused the problem.

"Jumbo 91, Command Post. See you on the ground."

When C.R. called "flaps forty," and Sam moved the flap handle to the detent, the "LE Slat Asymmetry" and "LE Slat Brake On" caution lights came on. The crew turned their attention to making a no-slat landing. It took everyone's constant prompting for C.R. to keep up with the checklist responses and thrust settings needed to fly the approach—just like every other approach and landing C.R. flew.

The landing was remarkably smooth for being 15 knots above touchdown speed. The Ambient Aeronaut even kept the taxi speed down to ten knots—the "Follow-Me" truck probably helped. When the wounded Galaxy arrived at the parking spot, the usual vehicles were there to meet them, including one belonging to the chief of maintenance.

C.R. was about to ask Chief Hayersplitter what he thought of his superior aviation skills when Colonel Ofersear, Chief of Maintenance, burst onto flight deck.

"I should have known it was you, Terror. What have you done to this airplane? There are wires dangling from the left wing leading edge. They look like they came from a high tension line. What kind of lame explanation do you have this time?"

Before the Silver-Tounged Fox could form a reply, Sam, Blinky, and Max picked up their gear and headed down the crew ladder—they knew what followed wouldn't be a pretty sight.

"Sammy, you were right about C.R. and his New Year's Resolutions, but I expected him to last until at least the third of January," sighed Blinky as he handed over a five spot to the faithful copilot.

Flying-Hour Milestones

15,000

732 MAS
MSgt. James A. Boatman

10,000

135 TAG
Col. Vernon A. Sevier

702 MAS
SMSgt. James A. Gist

7,500

17 TAS
MSgt. Gregory R. Alley

41 TAS
MSgt. Felice Taranto

53 MAS
MSgt. Paul Krachtus

62 TAS
MSgt. John A. Rawlings

73 AES
MSgt. Russell L. Hauser, Jr.

76 MAS
SMSgt. Dave A. Presson
MSgt. Bradley E. Chronister

185 TAS
MSgt. David A. Furr

514 MAW
SMSgt. Shem R. Miller

730 MAS
MSgt. Carl L. Record

907 TAG
SMSgt. Dale W. Davis

5,000

3 MAS
CMSgt. Jonathan R. Andrews
MSgt. Jimmie D. Victor

6 MAS
MSgt. Joseph Giacobello, Jr.
MSgt. Czeslaw L. Zack
TSgt. Conrad S. Braun

9 MAS
Lt. Col. John A. Hinchey
Capt. Gregory Gilbert
MSgt. Joseph J. Corning, Jr.
MSgt. Jerry C. Langston

17 MAS
Lt. Col. Norman C. Reed
MSgt. Gary L. Zack
SSgt. Philip W. Horne, III.

18 MAS
Lt. Col. Delbert H. Buchanan, Jr.
Lt. Col. Clyde A. Mosley
Capt. John D. Howard
MSgt. Keith A. Colbath
MSgt. Lynn G. Meyer
SSgt. John H. Aldershoff

20 MAS
Lt. Col. Brian A. Binn

22 MAS
MSgt. Christopher R. Dellinger
TSgt. David C. Chesum
TSgt. Mark A. Runyob

31 MAS
Lt. Col. August I. DeRosa
TSgt. Charles E. Brown

41 MAS
Lt. Col. Pryor B. Timmons, Jr.

52 MAS
Maj. James A. Fite
MSgt. Fernando Guerrero, Jr.
TSgt. Phillip E. Vaughn

53 MAS
SSgt. Dick K. C. Lau
SSgt. Jeffrey Nichols
SSgt. Michael P. Pionski
SSgt. Reginald P. Shafter

53 WRS
TSgt. Johnnie Hoskins

76 MAS
Lt. Col. James A. Danielik
Maj. Michael J. Mangan
MSgt. William D. Wilson
SSgt. David C. Allen

86 MAS
MSgt. David E. Blitch

99 MAS
Lt. Col. Robert W. Allen
Lt. Col. Hector R. Alvarez
Lt. Col. Emmet D. Anderson, Jr.
Lt. Col. William A. Bontly
Lt. Col. Stephen P. Camann
Lt. Col. John S. Chase
Lt. Col. Robert C. Davis
Lt. Col. John S. Ely
Lt. Col. John A. Gorczyca
Lt. Col. John M. Morgan
Lt. Col. Jon S. Martin
Lt. Col. James W. Stanfield, Jr.
Lt. Col. Brian D. Wampler
Maj. Buford L. Barrett
Maj. Y. U. Chang
Maj. Douglas R. Gibbs
Maj. Richard L. Gottschalk
Maj. Kenneth R. Hahlbeck
Maj. John M. Henderson
Maj. Gary L. Nelson
Maj. Bruce A. Nichols
Maj. Jarrold W. Rocco
Maj. Kenneth L. Rice
Maj. Garrison L. Smith
Maj. Jimmy L. White
SMSgt. Edward D. Daily
SMSgt. James M. Hynes
MSgt. Harold W. Smith
TSgt. Randy G. Rudd
TSgt. Paul S. Williams

172 MAG
SMSgt. Lawrence J. Bleakney

183 MAS
SMSgt. Earl W. Winterstein, III.

728 MAS
Capt. Terry W. Cope
Capt. Daniel F. Garcia
SMSgt. Herbert C. Guinn
TSgt. Randall L. Hoblit
TSgt. William A. West

730 MAS
TSgt. Alberto Murguia

Det 1, 1402 MAS
Lt. Col. Walter F. Bryce, Jr.
Maj. Gary L. Skol

2,500

9 MAS
Lt. Col. Alan C. King
Capt. Patrick S. LaClair
Capt. William H. Harley
Capt. Tracy A. Johnson
Capt. Daniel T. Norman
MSgt. Wayne A. Crowe
TSgt. Peter J. Wilkins
SSgt. Steven L. Chapel
SSgt. Theresa B. Fox

10 MAS
Capt. James P. Kelly, Jr.
Capt. Larry J. Roberts
TSgt. Robert E. Davis
TSgt. Patricia A. Glee
TSgt. Eddie Howard
SSgt. Tracy E. Bever
SSgt. Michael J. Borges

14 MAS
Capt. Christopher Austin
Capt. Dale R. Christensen
Capt. Jerome S. Jones
Capt. Frederick H. Martin
Capt. Lawrence J. Walter
SSgt. Trevor D. Edwards
SSgt. Brigham T. Gasu
SSgt. Richard E. Morrow

16 TATS
Capt. John P. McCarthy
Capt. Neil F. Smith
TSgt. Billy J. Wilson
SSgt. Mark H. Hartnett

33 ARS
Maj. Matthew R. Hedger
Capt. Robert A. Young

Det 2, 37 ARS
Maj. Robert W. Storey

41 ARS
Maj. Grant M. Tarpinian

52 MAS
Lt. Col. Mark A. Volcheff
Capt. Timothy B. Wrobel

53 MAS
Lt. Col. James E. Hill
Maj. Timothy S. Doty
Capt. Steven J. Minden
Capt. William R. Nelson
Capt. Timothy A. Paradiso
SMSgt. David J. Hedrick
TSgt. Stephen F. Russel
SSgt. Scott A. Beavers
SSgt. Mark E. Gray
SSgt. Richard G. Lowery
SSgt. Steven J. Pescatore
Sgt. Mark E. Kopman

62 TAS
Sgt. Gregory A. Nantz

99 MAS
CMSgt. William L. Harris
MSgt. Edouart D. Cardona
MSgt. Lawrance J. McCann
MSgt. Ronald M. Quiroz
MSgt. Harold W. Smith
TSgt. Joseph D. Asbel
TSgt. William M. Hess, Jr.
TSgt. Vernon A. Hurston
TSgt. Douglas J. Rhodes
TSgt. Illuminado L. Bergery
TSgt. Hulmer J. Heath, Jr.
TSgt. David J. Vierra
TSgt. Donald E. Dasse
SSgt. Rafael Gonzalez, Jr.
SSgt. Gerald D. Lofton
SSgt. Kenneth L. Tusing

183 MAS
Capt. Charles E. Ross

185 TAS
1st Lt. James D. Tutten

728 MAS
Maj. Annette T. Worthington
Capt. Russell S. Clark
Capt. Michael J. Fortanas
Capt. Mark S. Hardwick
Capt. George R. Ingram
Capt. Allen R. Jones
Capt. Irby Rivera
Capt. Frank L. Wallace
1st Lt. Brian D. Marolf
MSgt. Barnett Bieber
MSgt. Ronald D. Sopher
TSgt. Robert C. Gawel
TSgt. Kim H. Hansen
SSgt. Frank J. Cash, III.
SSgt. Douglas W. Twitchell

730 MAS
Capt. Kenneth G. Wuttke

907 TAG
MSgt. John E. Mills

Det 1, 1401 MAS
Lt. Col. Carl W. Gustke
Capt. Adam J. Dabrowski

1,000

33 ARS
Capt. David M. Fugua
Capt. Dean C. Gordon
MSgt. Michael S. Jaques
TSgt. William J. Bobick
SSgt. Thomas Langella
Sgt. William B. Feller
Sgt. Greggory D. Plasch

Det 2, 37 ARS
Maj. Gregory A. Gomez
Capt. John C. Osarczuk
Capt. Wesley R. Jolly
Capt. Gerard E. Eldering
Capt. Gary A. Alexander

Det 8, 37 ARS
Maj. Rodney J. McNeill
Capt. James L. Bryan
1st Lt. Eric L. Schwalm

Det 9, 37 ARS
Capt. W. J. Sullivan

Ranks and units are those at time of award. See MACR 900-3 for details on how to apply for your own milestone award. ★

QUICKSTOPPERS

Hot Time Hercules

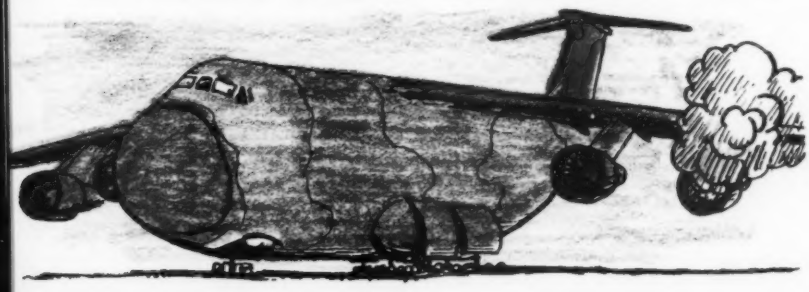
Everything seemed to be going well for the C-130 crew during a night pattern ride. Then, on VFR downwind, the crew heard a buzzing sound over interphone and smoke started to fill the cockpit. Flames began erupting from the forward essential AC bus on the pilot's side panel. The crew donned oxygen masks and declared an emergency, and the engineer opened the panel as the loadmaster came up front with a fire extinquisher. After discharging one bottle, he grabbed a second fire extinquisher to attack the fire. About this time, the engineer turned off all generators which removed the fire's ignition source. The crew made an "electric power out" landing, pulled off the runway and rapidly egressed the aircraft. Cause? Water on the aux-pump relay shorted it out and led to the fire. No, it wasn't coffee spilled by the pilot—water was seeping past unsealed screw heads above the circuit breaker panel. Water has a way of getting into places where it can do the most damage.

Where There's Water There's . . . Fire?

It was a hot, humid day. The Starlifter's crew had just completed an airdrop when they heard a crackling noise coming from the aft crew compartment bulkhead. This was quickly followed by sparks, bursts of flame, and smoke. A crewmember also noted water dripping along the front of the main power distribution panel. The crew donned oxygen masks and proceeded to fight the fire. An instructor flight engineer isolated the generators and turned off the air conditioning master switch which stopped the water leak. The fire and smoke lasted about 30 to 40 seconds. After an uneventful landing, investigation revealed water dripping across the main distribution panel had caused arcing, leading to the fire. Water was leaking from a loose clamp on the flight station gasper duct. So, while the crew was staying cool, the electric panel was getting fired up.

Just A Flash In The Handle

After a smooth landing, a C-5 with thrust reversers at reverse idle, was slowing to taxi speed when the pilot noticed a flashing overheat light for Number 1 engine. He stopped the Galaxy on the runway, moved all throttles from reverse idle to idle, and directed the scanner to take a look at the hot engine. Before the directions could be followed, the fire warning light and red light in the Number 1 fire handle illuminated. The pilot pulled the fire handle and initiated the "Engine Fire on the Ground" checklist. All fire warning lights went out immediately, and the scanner reported there were no indications of fire. After clearing the runway and after inspection by the fire department, engines were shut down. When a dedicated crew chief opened the engine cowling, he found soot on the inside of the cowling near the fuel nozzles. A leak check revealed fuel coming from a "B-nut" at the top of the engine. When the jumbo jet slowed to taxi speed, the fuel leak pattern altered and the fuel found an ignition source. The fire handle worked as advertised—fuel was immediately shut off and the fire extinguished.



WHEN IS TOO MUCH GAS TOO MUCH?

At 1730 hours, the crew of an MH-53J responded to a request for aeromedical evacuation of an injured hiker trapped in a steep canyon. The mishap aircraft had been prepared for evening training and eight crewmembers were selected from instructors scheduled to fly that night. Discussions covered options available to the crew, including fuel dumping.

The aircrew departed home station, arriving on scene at 2020. The pickup point was one-half mile upstream of a river in a canyon 500 feet wide at the rim and 125 feet wide at the river bed. The crew accomplished all checklists, reviewed emergency procedures, and identified a forward area where the pilot could move to clear ground personnel should auxiliary fuel tank jettison be required. The pilot selected an approach path flown East to West, corresponding to the flow of the river, and decided a 25-foot hover should be used for the hoist pickup. With preliminary preparations out of the way, the crew began the descent to 25 feet. As the aircraft passed approximately 30 feet on the radar altimeter, the pilot applied collective to arrest the descent, and the right and left scanners called "stop down." The aircraft failed to respond and the right scanner called for a go-around. The crew heard what sounded like rotor droop, and the pilot announced his intentions to fly out of the hover. Rotor RPM drooped through 95 and then 92 percent as the descent was finally halted 15-20 feet above the river bed. With the aircraft moving forward and a canyon wall outcropping approaching, the pilot judged the river bed to be an unsuitable landing surface and gave the command to jettison the auxiliary fuel tanks. The two 650-gallon "crashworthy" tanks separated normally and fell to the river bed, one tank splitting in two and spilling 290 gallons of JP-4 into the river, and the second tank cracking and seeping fuel. RPM increased rapidly as the aircraft passed 10-15 feet above the outcropping. The hiker was eventually rescued using a 50-foot hover and delivered to a nearby medical facility. Do you suppose the crew needed to put on more gas for the return flight to home station?

After Deadlines

SAY GOODBYE TO THE IG -- On 1 January 1991 the Inspector General became the Deputy Chief of Staff, Quality Support and Readiness. This constitutes a major change in philosophy in doing business. The new terms and structural changes taking place will be presented in the February issue of *TMF*. Part of the new structure is a change of most office symbols. For the safety folks the new symbols are: Director of Safety, QSS; Flight Safety, QSSF; Ground Safety, QSSG; Education and Awards, QSSE; Nuclear Surety, QSSN; Explosives and Hazardous Cargo, QSSW.

SO LONG SHERPAS -- The 10th Military Airlift Squadron is the first flying unit in Europe to inactivate since the thaw in East-West relations began a year ago with the fall of the Berlin Wall. The deactivation is in accordance with the drawdown of forces in Europe and closure of Zweibrucken AB. The ceremony was held 9 November, so personnel assigned to the squadron, most of whom will depart before the end of December, could participate. Officially, the unit inactivates on 31 March 1991. The unit flew more than 67,000 mishap-free flying hours in support of the European Distribution System.

NEW RESCUE/TANKER DELIVERED -- The 210th Air Rescue Squadron at Kulis ANGB, Anchorage, Alaska, has taken delivery of the first of two HC-130H(N) aircraft. The Rescue/Tanker will be used for in-flight refueling of Sikorsky MH-60G search and rescue helicopters as well as for extended air search for people, surface craft, or aircraft in distress. During the delivery mission from Lockheed to Kulis, the Hercules provided several in-flight refuelings for a MH-60G which had been on loan to a unit in Boise, Idaho.

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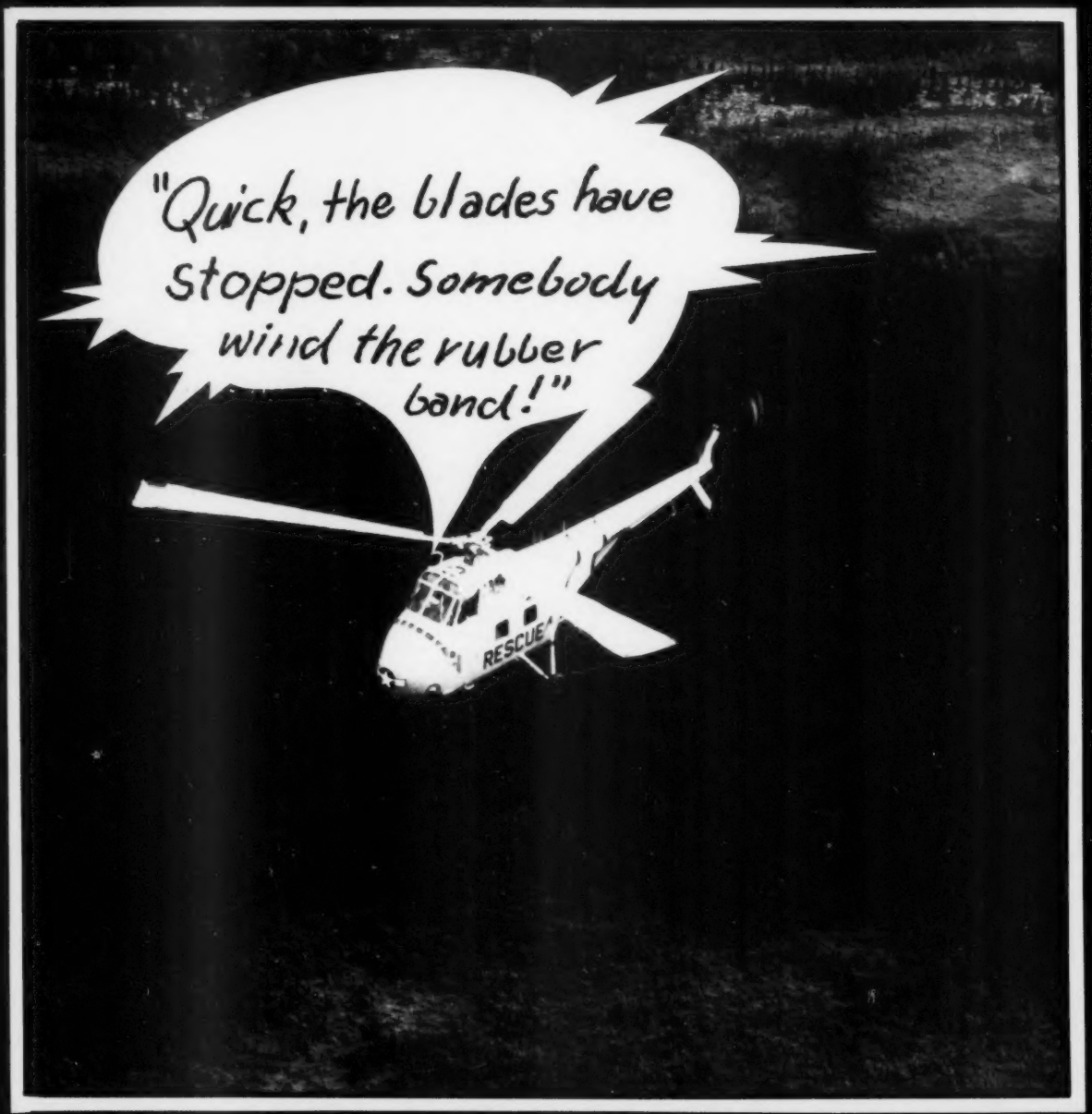
TOUCH N GO


"Quick, the blades have stopped. Somebody wind the rubber band!"
RESCUE